Consciousness and pain re behavioral dimensions with which the pain physician is acutely familiar. The clinician is daily charged with regulating those parameters in a reversible and graded fashion to minimize suffering and maximize survival in the extreme physiological conditions imposed by injury (iatrogenic and otherwise) and inflammation.

The challenges posed by the complexity of the intact organism require the most aggressive and knowledgeable application of our insights and talents. The prominent advances in the diagnosis and management of pain reflect the keen interest by society and the physician of the seriousness posed by pain and by the continued advances in our understanding of the basic biology of the systems that process pain. This philosophy has been an integral part of the WIP philosophy from the earliest days.

This WIP World Congress in New York, in its organization and activities, continues in this vein with a strong emphasis upon clinical practice and its appreciation of the contribution of the basic mechanisms which underpin advances in pain diagnosis and management.

We welcome you to this gathering to celebrate, contribute and learn: to celebrate the physicians and scientists who have advanced the practice, to contribute our insights to the benefit of all, and to learn the exciting advances that characterize this rapidly evolving area of medicine.

Congress Chairman
Richard L. Rauck, MD, FIPP

Scientific Program Committee
Tony Yaksh, PhD, Chairman
James Rathmell, MD, FIPP, Co-Chairman
Giustino Varrassi, MD, PhD, FIPP, Co-Chairman

To strengthen the standards of interventional pain practice on a global scale is the principle founding vision of WIP. In New York, the site of the WIP 5th World Congress, WIP celebrates with all participants and sponsors the constancy of this vision. Through your support and with the dedication of pain physicians all over the world who share our commitment to WIP, together we lead by example to achieve the objectives that are essential to sustaining WIP’s educational philosophy.

In this newsletter, we reflect on some of the crowning achievements and activities of WIP in the past year—and proudly promote new initiatives and endorsements. We invite you and your colleagues to adopt WIP as your year-round partner in advancing the standards of interventional pain practice.

- Serdar Erdine, MD, FIPP, WIP President & Founder
In 2008, WIP fostered educational opportunities for pain physicians through its sponsorship of conferences and workshops. The chief objective of these programs was to present new developments in interventional pain practice to physicians in a focused, straight-forward manner, to achieve better care for patients in pain. These programs included:

♦ Intervventional Techniques Review Course and Comprehensive Interventional Cadaver Workshop, March 7-8 – Memphis, Tennessee, USA. In partnership with the American Society of Interventional Pain Physicians (ASIPP), WIP and ASIPP offered these didactic and FIPP examination preparatory activities that are unparalleled in the specialty of pain medicine.

♦ 3rd International Symposium on Interventional Pain Procedures, and 7th UK Hands-on Cadaver Workshop on Interventional Pain Procedures, June 26-28 – London, UK. World renown experts on pain medicine, the majority of whom have earned FIPP certification, lead a series of focused and straight-forward lectures and discussions on current topics of interest to interventional pain medicine specialists. Likewise, esteemed faculty from the UK, Europe and USA administer the cadaver workshop that is a suitable preparatory course for physicians interested in the FIPP examination.

♦ 13th Annual WIP Budapest Conference, September 8-10 – Budapest, Hungary. The program faculty consists of renowned professionals and high-quality practitioners who present evidence-based clinical experience. The conference is devised around teaching and learning for better patient care and participants are assured of leaving with an enrichment of knowledge in the specialized field of pain treatment.

♦ International Pain Conference, In the Temple of Pain Relief, November 20-22 - Cairo, Egypt (co-sponsored with ESMP and PAIP). In 2008, WIP chose Cairo, the Egyptian Society for Pain Management (ESMP) and the Pan-Arab Institute of Pain (PAIP) to share the world’s highest level of knowledge and techniques for management of pain. The congress consisted of acute and chronic pain topics, as well as symposiums and live workshops, in order to improve in practice the pain service offered to humanity.

WIP’s journal of Pain Practice, now indexed in Medline, completed its seventh year of publication, providing a forum for physicians to acquire and contribute to the knowledge needed to promote the advancement of interventional pain practice around the world.
In 2008, the Fourth Edition of Raj’s Practical Management of Pain (ELSEVIER) was released. The book is co-authored by P. Prithvi Raj, MD, FIPP (2001) and James P. Rathmell, MD, FIPP (2005). Also, the Second Edition of Interventional Pain Management: Image-Guided Procedures with DVD (ELSEVIER) was also released, and was co-authored by P. Prithvi Raj, MD, FIPP (2001); Leland Lou, MD, FIPP (2001); Serdar Erdine, MD, FIPP (2001); Peter S. Staats, MD, FIPP (2001); Gabor B. Racz, MD, FIPP (2001); Michael Hammer, MD, FIPP (2002); David Niv, MD, FIPP (2001); Ricardo Ruiz-López, MD, FIPP (2001); and James Heavner, DVM, PhD, FIPP (HON) (2001) are among the contributing authors.

WIP’s Section of Pain Practice awarded 68 FIPP certificates in 2008 to Fellow of Interventional Pain Practice examinees who participated in the March (Memphis, USA) and September (Budapest, Hungary) examinations. Today, WIP’s 498 total FIPPs represent 33 countries.

| FIPPs by Country          | Argentina (2) | Australia (8) | Belgium (21) | Brazil (4) | Canada (3) | Colombia (3) | Egypt (5) | Germany (6) | Greece (2) | Hungary (4) | India (5) | Iran (3) | Ireland (2) | Israel (7) | Italy (6) | Korea (5) | Lithuania (1) | Malta (1) | Mexico (1) | Netherlands (7) | Philippines (4) | Portugal (1) | Puerto Rico (5) | Saudi Arabia (2) | Singapore (4) | South Africa (3) | Spain (14) | Switzerland (7) | Taiwan (1) | Turkey (14) | United Kingdom (18) | USA (328) |
|---------------------------|---------------|---------------|--------------|------------|------------|--------------|-----------|-------------|------------|-------------|-----------|-----------|--------------|-------------|------------|-----------|----------------|------------|-------------|------------------|----------------|-------------|-----------------|-----------|----------------|-----------|-------------|------------------|----------|

WIP launched a new website that features greater educational content and resources for its members, prospective members and supporters. The Calendar of Events features an active schedule of conferences and workshops. The current FIPP exam application and booklet of information are available for download. DVDs can be purchased online, and more.

In 2009, more presentations from WIP conferences will be posted on the website—some requiring member login. More procedures and processes will be introduced for online access to enhance efficiency within the global network of WIP. Members and prospective members are encouraged to make the WIP website a “favorite” and return often for information and educational material of interest to the pain specialist.

The WIP Council, consisting of the Executive Board and Section Chairmen, has been actively promoting the mission and aims of WIP. Members are encouraged to share with their Section Chairman and the WIP President ways that WIP can better serve its members in each region.
The World Institute of Pain proudly announces the first recipients of the Samuel Hassenbusch Prize for outstanding achievement on the 2008 FIPP examination. Javier de Andres Ares, MD, FIPP (Budapest Class of 2008) and Louis J. K. Pau, MD, FIPP (Memphis Class of 2008), who achieved equivalent high scores and superior peer recommendations, are the recipients of the 2008 Hassenbusch Prize. They will be honored at the 5th World Congress in New York, where they will be presented with a plaque and monetary award of $1,000 USD.

Javier de Andres Ares, MD, FIPP

Dr. Ares, of Spain, is affiliated with the pain clinic at the Hospital Virgen de la Salud in Toledo, Spain. He is also in private practice and serves as director of the pain clinic at the Hospital Capio de las Tres Culturas.

Ares is a specialist in anesthesiology and reanimation, and pain medicine, and a recognized expert in interventional techniques, radiofrequency, neurolytic blocks, and spinal cord stimulation and infusion.

Louis J. K. Pau, MD, FIPP

Dr. Pau, of the USA, is affiliated with the Pain Center of Kansas in Topeka, Kansas, USA.

Pau is a specialist in anesthesiology and pain medicine, with expertise in the performance of advanced interventional pain practice techniques.

The Prof. Samuel J. Hassenbusch III, MD, PhD, FIPP Prize was established in 2008 by the WIP Council Executive Board. The award honors the contributions of Prof. Hassenbusch to the field of pain medicine and to WIP until his death in February 2008.

The purpose of the Hassenbusch Prize is to recognize annually the FIPP with the highest achievement on the examination.

The Hassenbusch Prize Committee, chaired by Prithvi Raj, MD, FIPP, DABIPP and served by Gabor B. Racz, MD, FIPP, DABIPP, and Nagy A. Mekhail, MD, PhD, FIPP, reviewed the three highest scoring FIPPs from each of the Memphis and Budapest examination classes in 2008. Their recommendation was presented to WIP President, Prof. Serdar Erdine, MD, FIPP who affirmed the recommendation. James E. Heavner, DVM, PhD, FIPP (HON), Registrar of the FIPP Examination and Prof. Erdine notified the prize recipients.
WORLD INSTITUTE OF PAIN
SECTION OF PAIN PRACTICE
Congratulates the FIPP Classes of 2008

The 12th Annual Examination — March 9, 2008
Memphis, TN, USA

#431 Hammam H. Akbik, MD, FIPP-USA
#432 Amany Ezzat Ayad, MD, FIPP-Egypt
#433 John P. Badalamenti, MD, FIPP-USA
#434 Manuel Alexander Barbeito, MD, FIPP-USA
#435 Jeffrey W. Berg, MD, FIPP-USA
#436 Gamal S. Boutros, MD, FIPP-USA
#437 Joe Hugh Browder, MD, FIPP-USA
#438 Karen A. Burnham, MD, FIPP-USA
#439 Sheldon K. Cho, MD, FIPP-USA
#440 Frantz J. Colimon, MD, FIPP-Colombia
#441 Rosemary Daly-Camacho, DO, FIPP-USA
#442 Thomas Joseph Derbes, MD, FIPP-USA
#443 Hong-Kai Kevin Du, MD, MSC, FIPP-USA
#444 Mohammad Abd Eldeeb, MD, FIPP-USA
#445 Lee W. Erlendson, MD, FIPP-USA
#446 Jorge Rene’ Estupiñan, MD, FIPP-Colombia
#447 Miguel Figueroa, MD, FIPP-USA
#448 Michael Fletcher, MD, FIPP-USA
#449 David Michael Forman, MD, FIPP-USA
#450 Gennady Gekht, MD, FIPP-USA
#451 Carlos E. Guerrero, MD, FIPP-USA
#452 Paul Joseph Hubbell, III, MD, FIPP-USA
#453 Ronald Wayne Jones, DO, FIPP-USA
#454 Robert H. Long, MD, FIPP-USA
#455 Timothy R. Lubenow, MD, FIPP-USA
#456 Sachit N. Manocha, MD, FIPP-USA
#457 Vidyasagar Mokureddy, MD, FIPP-USA
#458 Iran E. Montalvo-Otano, MD, FIPP-USA
#459 Robert Harper Odell, Jr, MD, PhD, FIPP-USA
#460 Jon C. Parks, MD, FIPP-USA
#461 Louis J. K. Pau, MD, FIPP-USA
#462 Mark C. Pinkerton, MD, FIPP-USA
#463 Sunita Polepalle, MD, FIPP-USA
#464 Patrick L. Retterath, MD, FIPP-USA
#465 Roberto de Oliveira Rocha, MD, FIPP-Brazil
#466 Dasa S. Satyam, MD, FIPP-USA
#467 Ahmed I Sewielam, MD, FIPP-USA
#468 Shiv K. Sharma, MD, FIPP-USA
#469 Timothy Earl Snell, MD, FIPP-USA
#470 Praveen Kumar Suchdev, MD, FIPP-USA
#471 Boris Milan Terebuh, MD, FIPP-USA
#472 Vikas Varma, MD, FIPP-USA
#473 David A. Weber, MD, FIPP-USA
#474 Neil Howard Weisman, MD, FIPP-USA
#475 Rey Ximenes, MD, FIPP-USA
#476 Madhu S. Yelameli, MD, FIPP-USA

The 13th Annual Examination — September 11, 2008
Budapest, Hungary

#477 Osman Nuri Aydin, MD, FIPP-Turkey
#478 Gianni Colini Baldeschi, MD, FIPP-Italy
#479 Philippe Berenger, MD, FIPP-USA
#480 Leandro Mamede Braun, MD, FIPP-Brazil
#481 Erika Budai, MD, FIPP-Hungary
#482 Josué Cid Calzada, MD, FIPP-Spain
#483 Javier de Andrés Ares, MD, FIPP-Spain
#484 Sudhir A. Diwan, MD, MS, FIPP-USA
#485 Susheel Dua, MD, FIPP-USA
#486 Tacsan Fernandez, MD, FIPP-UK
#487 Jos Geelen, GFM, MD, FIPP-Belgium
#488 Mohieddin Fasihhi-Haranidi, MD, FIPP-Iran
#489 Farnad Imani, MD, FIPP-Iran
#490 Robert Jon Klickovich, MD, FIPP-USA
#491 Mohamed Abd El Raouf Abd El Kader Nasr, MD, FIPP-Egypt
#492 Fabián César Piedimonte, MD, FIPP-Argentina
#493 Russell P. Raath, MBChB, MMed(Anaesth), FIPP-Argentina
#494 Dirkjan Torian, MD, FIPP-USA
#495 Carl Vandenbossche, MD, FIPP-Belgium
#496 Frans Van de Perck, MD, FIPP-Belgium
#497 Maarten Van Eerd, MD, FIPP-Netherlands
#498 Carlos Viesca, MD, FIPP-USA

2009 FIPP Examination Schedule
March 16, 2009 — New York, USA Class Full
September 3, 2009—Budapest, Hungary
Go to: www.worldinstituteofpain.org
SECTION NEWS

The life blood of any organisation is its members; all FIPPs belong to a national or regional WIP Section. Section members are now busy routinely organising national and regional meetings that are enhancing the status of WIP around the world. The Sections are indeed making WIP a force to be reckoned with.

Napoleon Bonaparte once said that, "Every soldier carries a marshal's baton in his pack"; by the same token, every Section has a potential future WIP President who by his or her endeavours will get themselves noticed at the national, regional and international level and eventually lead our organisation to bigger and better things. The Sections are the acorns from which the strong future leadership of the WIP tree will grow.

In his Aeneid, Virgil explains that no one has expertise in all fields ("non omnia possumus omnes"), but all Section members working together and doing their individual bit can achieve a great deal ensuring that WIP grows from strength to strength.

It is a great honour for me to represent the Sections on the WIP Executive Board; I am really impressed by the hard work, enthusiasm and energy of the Section members. This bodes well for WIP.

Keep up the good work. See you all in New York

Charles A. Gauci, MD, FRCA, FIPP, FFPMRCA
Chairman, Board of Sections

Benelux Section (Belgium & The Netherlands)

The majority of the FIPP alumni and other pain therapists wrote a contribution to the Dutch handbook, “Practice guidelines for anesthesiological pain management techniques based on clinical diagnoses.” This work aims at reaching a consensus on the management of the chronic pain patient. Each chapter of the book follows a standardized framework. Attention is paid to the diagnostic process and the development of an evidence-based treatment plan. The recommended anesthesiological techniques are described and illustrated with radiographic images. The printed version of this handbook is foreseen for May 2009.

The different chapters of this book will be translated into English. American colleagues, mainly from the Cleveland Clinic, agreed to edit and where necessary adapt the work to be suitable for publication in the EBM section Pain Practice.

The content of the book will also be the topic of the yearly joint congress of the Dutch and Flemish association of pain therapists, to be held on December 12th 2009.

Prior to this congress, December 10 and 11, 2009 a hands-on cadaver workshop will be organized in Maastricht. It will be a small sized local workshop with lectures and teaching in Dutch.

Jan Van Zundert, MD, PhD, FIPP (Belgium)
Chairman, Benelux Section

Maarten Van Kleef, MD, PhD, FIPP (Netherlands)
Iberian Section (Spain & Portugal)

In 2009, an international symposium on “Minimally-Invasive Surgery in Chronic Pain” will be held September 18-19, 2009 in Barcelona. This symposium is being chaired by Ricardo Ruiz-López, MD, FIPP.

Carmen Pichot, MD, FIPP (Spain)
Chairman, Iberian Section

Israel Section

Pain Medicine has become a subspeciality in Israel. In January 2009 the Minister of Health approved the recommendation of the Israeli Medical Counsel for a residency in Pain Medicine. A training period of 27 months has been chosen for the subspeciality. This is the final fruit of late Prof. David Niv's obstinate struggle.

Meir Bennun, MD, FIPP (Israel)
Chairman, Israel Section

Korea, Japan, China Section

Regional meetings of interest to pain physicians in this section include:
- The 48th Scientific meeting of the Korean Pain Society: May 30-31, 2009, Convention Center at Daejon, Korea
- The 49th Scientific meeting of the Korean Pain Society: May 30-31, 2009, Hilton Hotel at Seoul, Korea
- Cadaver workshop: May 16-17, 23-24, June 13-14, 20-21, September 12-13, 19-20, 2009

A request to expand the scope of this Section to include China was made and approved by the Section Board Chairman. This will permit the Section Chairman to pursue discussions with several leading groups of Chinese pain physicians who have expressed an interest in joining WIP.

이상철 Sang Chul Lee, MD, PhD, FIPP (South Korea)
Chairman, Korea, Japan, China Section

Latin America Section

The joint theoretical—practical (2009-2010) biannual cycle of the Specialist Program in Pain Medicine and Palliative Care of Universidad de Buenos Aires and Fundación Dolor will begin on April 8th, 2009. An ultrasound machine for chronic pain therapy will be put into service at the Pain Center in Clínica San Camilo. Over 60 colleagues from different Latin American countries have already signed up for this course (Latin American School of Interventional Medicine). This program has the official endorsement of CLASA, Universidad de Buenos Aires and other universities from various countries.
SECTION NEWS (continued)

Other symposia planned in this region include:

- First International Course of Ultrasonography and chronic pain. Buenos Aires University. International speakers, like Michael Gofeld and Juan Francisco Asenjo, have already confirmed their participation.
- 15th International Course of Fundación Dolor and related activities (courses for nurses, pharmacists, physical therapists, etc.).
- 4th Annual Advanced Interventional Pain Symposium and Practical Workshop of FD and WIP. Apart from cadavers, ultrasonography machines and radioscopy images, the Simulator’s technique with "KIP" Kohrman Injection Phantom and the second FD Simulator Kip Kohrman (its youngest brother) will be introduced.

Also, organization is underway for the World Congress of Anesthesiologists in 2012 at Buenos Aires. This will be a big meeting dedicated to pain medicine with cadavers, simulators, education, legal aspects, images, ultrasonography, etc.

**Fábrico Dias Assis, MD, FIPP (Brazil)**
Chairman, Latin American Section

**J. Carlos Flores, MD, FIPP (Argentina)**
Vice-Chairman, Latin American Section

**Mediterranean Section**

An international congress is scheduled for June 18-21 2009 on Myconos Island, Greece. Athina Vadalouca, MD, FIPP is the program organizer of this WIP-sponsored activity.

**Giustino Varrassi, MD, PhD, FIPP (Italy)**
Chairman, Mediterranean Section

**SE Asia Section**

A meeting was held with the filipino FIPPs to talk about further collaboration. An agreement was reached to combine expertise in the coming ASEAPS (Association of South East Asian Pain Societies) meeting in Bali on 17th April 2009 (http://www.aseaps2009.net/), an interventional pain workshop will be chaired and organized by the undersigned Section Chairman. It is considered a good time to raise the profile of FIPP in this region and exploration is underway to determine if any of the European or American FIPP instructors or examiners may be keen to help with some of the talks. Interested FIPPs may contact me directly.

**Alex Sow Nam Yeo, MD, FIPP (Singapore)**
Chairman, Southeast Asia Section

**UK & Eire Section**

The 4th symposium and 8th workshop, respectively, have been scheduled for June 25, and 26-27 in 2009 and is the main event for the UK Section – aimed at preparing interested pain physicians for the Fellow of Interventional Pain Practice examination.

**Muhammad Ather, MD, FRCA, FIPP (UK)**
Chairman, UK & Éire Section

**Charles A. Gauci, MD, FRCA, FIPP, FFPMRCA (UK)**
Vice-Chairman, UK & Éire Section
Muhammad Ather, MD, FRCA, FIPP, FFPMRCA (2003), Charles A. Gauci, MD, FRCA, FIPP, FFPMRCA (2001), and Patrick R. McGowan, MBChB, FRCA, FIPP, FFPMRCA (2002) have been awarded the post-nominal letters of FFPMRCA by The Royal College of Anaesthetists. The College is the professional body for the specialty of anaesthesia throughout the United Kingdom. Its principal responsibility is to ensure the quality of patient care through the maintenance of standards in anaesthesia, pain management and intensive care.

**Prof. Alex Cahana, MD, DAAPM, FIPP (2006),** The H.M. Blake Professor and Chief, Division of Pain Medicine in Department of Anesthesiology and Pain Medicine of the University of Washington Medical Center, has been appointed **Special Assistant to the President of the World Institute of Pain,** serving the incumbent president, Serdar Erdine, MD, FIPP (2001). (E-mail: acahana@u.washington.edu)

**Michael Gofeld, MD, FIPP (2003),** formerly of Sunnybrook Health Sciences Centre in Toronto, Ontario, Canada, is now the Director of Clinical Services at the University of Washington Center for Pain Relief in Seattle, Washington, USA. (E-mail: mgofeld@rogers.com)

**Edvin B. Koshi, MD, FRCPC, FIPP, CEDIR, CIME (2007),** Assistant Professor of Physical Medicine and Rehabilitation, Neurosurgery and Anaesthesia at Dalhousie University in Halifax, Nova Scotia, Canada has been appointed vice-chairman of the World Institute of Pain’s North America Section, representing Canada. (E-mail: Edvin.koshi@cdha.nshealth.ca)

**Judson J. Somerville, MD, FIPP (2005) of Laredo, Texas,** upon the recommendation of Senator Judith Zafirinni, The Texas Medical Association and the Texas Pain Society, was appointed to the Statewide Pain Treatment Review Committee. This Committee will begin the work of reviewing various pain related statutes and make recommendations to the next legislature for consideration. He was one of only five members appointed to this board and his position will be that of a physician at a private hospital representing a member of the governing board of the Texas Medical Association. Other members of the board will be a physician representing a public hospital, a probate judge, and an administrator representing a public and one representing a private hospital.

In other news Dr. Somerville was elected president-elect of the Texas Pain Society at their annual meeting June 15th meeting in Lubbock, Texas. This is a two-year term, which began immediately and will lead to becoming president upon its termination. The Texas Pain Society is one of the prominent pain organizations in the United States and represents over 250 Pain Management Physicians in Texas. He is a member of the Texas Medical Association and actively promotes physician education on health related topics concerning the diagnosis, treatment and research of Pain Management as well as promoting and maintaining the highest standards of professional practice. (E-mail: somervillejudson@netscape.net)

Let FIPP Alumni News keep you and your colleagues abreast of significant professional achievements of FIPP alumni. Please forward your FIPP news of interest to your WIP Executive Secretary at dianne.willard@worldinstituteofpain.org.
Clarion Call to Pain Physicians
By P. Prithvi Raj, MD, FIPP, DABIPP
Founder and Past President, WIP

I am writing this piece of historical pain management, based on my effort all my life to study it. It has a bias towards the way I think and so could be challenged by pure historians. All the same, it serves the purpose of trumpeting a clarion call for all of us (pain physicians) to come together in this period of history and advance the science and practice of pain management to a higher place than we found it.

Towards that goal, I am pleading to all giants of pain management and the great pain societies they belong to, to get together and review the status of pain management today and find areas of improvement, society by society.

The need for us to do this is to get recognition of pain management as a primary specialty, study the pain mechanisms with the most effective research tools available today, to make pain relief as a human right and finally ask the governmental and reimbursement agencies to give pain management the same respect they give to major specialties like medicine and surgery.

Your comments will be most welcome.
— Prithvi Raj, MD, FIPP, ABIPP Founder and Past President WIP (prithviraj@fuse.net).

The Contemporary Era
By P. Prithvi Raj, MD, FIPP, DABIPP

THE CONTEMPORARY ERA IN PAIN MANAGEMENT really began with the discovery of nitrous oxide and its analgesic properties in the late 18th century. These developments were soon followed by scientific investigation of the anaesthetic properties of nitrous oxide and ether on animals and use of these substances in human patients. Surgical anaesthesia was first publicly demonstrated at Massachusetts General Hospital in 1846. (Fig 1) The discovery and use of anaesthetics changed man's perception of pain by providing a method of transcendence, meanwhile having a direct impact on the understanding of pain mechanisms and stimulating research.

By the 1860s the efficacy of locally applied opiates, especially morphine, directly to the skin or nerves for pain relief was widely accepted. This was taken a step further when the development of the hypodermic syringe and needle allowed injections to be widely administered for treatment of intractable pain such as that associated with neuralgia. (Fig 2) The effects of preoperative and intraoperative administration of morphine to the area of incision or amputation was investigated, and cocaine became available as a local anaesthetic. Epidural and caudal anaesthesia—soon followed. Local anaesthetics soon came to be appreciated as a viable means of decreasing surgical risks, especially for high-risk patients.

Surgical techniques for pain relief represented another great medical advance during the 19th century. With the advent of antiseptic surgery, procedures became less life threatening, allowing investigation of pain relief techniques involving permanent interruption of afferent pathways. Innovative techniques were developed for treatment of trigeminal neuralgia, in addition to procedures such as retrogasserian neurectomy and cordotomy, ablation of the sympathetic nervous system, sympathectomy for visceral pain and angina pectoris and surgical management of neuralgia.

Fig. 1: Showing the performance of surgery with the help of early anesthesia techniques in late 1800’s.
Investigative Era of Pain
Mechanisms

There was little understanding of pain mechanisms at the beginning of the 19th century; and many questions—such as whether Sensibility related to Movement, separate sensory and motor nerves existed and whether single nerves could carry out different functions. Early researchers tried to explain pain by concentrating on the specialization of functions in different parts of the brain. Animal experiments investigating spinal nerve root functions were more successful, significantly contributing to medical knowledge during this period. Investigators such as Claude Bernard, Charles Bell and Francois Magendie developed innovative experimental procedures that allowed differentiation of Sensation from Movement and between functions of anterior and posterior spinal nerve roots. That two kinds of nerve fibres—gray or nonmyelinated and white or myelinated—existed was already established.

First Conceptual Idea of Chronic Pain

A significant impetus to the perception of the nervous system as a system involving the transmission of sensations from the periphery to the centre via a system of complex relays was provided by the work of German physiologist and comparative anatomist Johannes Muller. (Fig 3) Muller proposed a connection between the anatomic pathway of a fibre and perception of sensation, stimulating further research on specific fibres for pain and nociceptors.

Soon nerve structures were identified in the dermis, leading to investigation of dissociation of sensations within the sensation of touch; and the spinal cord was more realistically appraised as a central processor with the ability to itself affect the transmission of sensations. Other noteworthy contributions to knowledge were made by Waller, who developed a sectioning technique allowing observation of fatty degeneration of a fibre, leading to an awareness of ascending and descending pathways and the origin of nerve fibres; Von Frey, who developed a device allowing the intensity of stimulation and sensory thresholds to be accurately measured and sensory receptors to be explored; and Goldscheider, who explored the trajectories of nerve fibres. The latter's theory of summation strongly influenced the direction of neurological research during the 19th century.

Early Clinical Research

There were many other pioneers who, through work with patients in pain or self-experimentation, contributed to the general
body of medical knowledge: Weir Mitchell's work with neuritis, neuralgia and causalgia; Henry Head's discovery of two different types of nerve fibres and Sherrington's notion of an integrated nervous system were major advances establishing a firm foundation for an understanding of pain mechanisms and more effective approaches to treatment. We are indebted to Melzack and Wall for perhaps the most significant leap in understanding, the “gate control theory”. This explanation located both facilitatory and inhibitory influences on the cells of the substantia gelatinosa of the spinal cord with large-diameter, fast-conducting touch fibres suppressing, and smaller-diameter, slower-conducting pain fibres increasing, central output.

Although the gate control theory explained more about pain transmission than had been previously understood, recent findings about neural mechanisms common to both normal and abnormal pain states have greatly increased knowledge in this area. (Fig 4)

**New Devices**

A greater understanding of pain mechanisms has resulted in the development of devices offering innovative therapeutic approaches. For instance, the present use of transcutaneous electrical nerve stimulators (TENS) began about 2 years after publication of the gate control theory, when it was discovered that the external application of electrical stimulation could effectively relieve pain before implantation of dorsal column electrodes. Dorsal column stimulators were also a direct result of the gate control theory. The efficacy of treatment relies on stimulation of low-threshold primary afferent fibres, which causes central inhibition of pain signals. Dorsal column stimulators are now an effective means of treating patients with chronic neuropathic and vascular pain. In addition, peripheral nerve stimulators have been used to manage chronic pain after peripheral nerve injury. Deep brain stimulation is a newer technique, still somewhat uncertain in terms of success rates. (Fig 5) (Fig 6) (Fig 7)

**Opioid Receptor Era**

New treatment techniques represent another beneficial byproduct of pain-related research. For instance, the discovery of opioid receptors in the central nervous system provided a rationale for the development of intrathecal and epidural administration of opioids. Pain management has also devel-
oped an approach designed to deal with the "total" patient. Because no one specialty is fully equipped to handle the complex problem of pain, multidisciplinary programmes usually include two or more physicians and non-physicians. The multidisciplinary approach to pain management was first conceptualized by Bonica." (Fig 8) It is based on the idea that pain, especially chronic pain, has many dimensions, and that psychosocial factors play an important role in determining the perception of the pain experience." The treatment process begins with a multidisciplinary assessment. It is individualized so as to be most efficacious for a particular patient.

Similarly, treatment may include multiple modalities, including options as diverse as anti-inflammatories, analgesics, antispasmodics and sympathetic blocks. Opiate analgesics, antiepileptic medications such as carbamazepine, tricyclic antidepressants, spinal stimulation techniques, behavioral intervention, and TENS are also commonly used. Minimally invasive surgery is now showing promise.

With increasing recognition of pain management as a specialty has come the development and formalization of curricula and training programmes.

Public Awareness

A particularly important need in the field of pain management has been to increase the awareness, in the population at large, of the incidence of cancer pain and to develop a comprehensive approach for refractory pain in terminal stages.

In conclusion, I would like to emphasize the importance of pain management, its advances as a unique discipline, and the options we now have available to treat a patient with moderate-to-severe pain. The discovery of opioid receptors; a taxonomy of classification of pain; a multidisciplinary, multimodal treatment approach; and establishment of curricula and training in pain medicine are spectacular advances in pain medicine. It is not surprising, therefore, that these advances have contributed significantly to the practice of medicine.

PPR

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Editorial
Epidural steroid injection - How should the indications for use be derived: systematic review or basic science?
Craig T. Hartrick, MD, FIPP

Original Articles
Cell Types Obtained From The Epidural Space Of Patients With Low Back Pain/Radiculopathy
James E Heavner, PhD; Hemmo A Bosscher, MD; Mitchell S Wachtel, MD

Depression in chronic pain patients: Prevalence and measurement
Helen Poole, PhD; Susie White, DClinPsych; Chantal Blake, DClinPsych; Peter Murphy, PhD; Ros Bramwell, PhD

A randomized, double blind, placebo controlled study of preemptively administered intravenous parecoxib: Effect on anxiety levels and procedural pain during epidural catheter placement for surgical operations or for chronic pain therapy
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Citalopram Enhances B Cell Numbers in a Murine Model of Morphine-Induced Immunosuppression
Thao Nguyen, M.S.; Jeffery Kramer, Ph.D.; Ricardo Vallejo, M.D. Ph.D.; George Stanton, M.S.; Byron A. Heidenreich, Ph.D.; Ramsin Benyamin, M.D.; Laura A. Vogel, Ph.D.

Demographic characteristics of patients with severe neuropathic pain secondary to failed back surgery syndrome
Simon Thomson; Line Jacques

Case Reports
Peripheral Subcutaneous Stimulation for the Treatment of Intractable Postherpetic Neuralgia: Two Case Reports and Literature Review
Irene Kouroukli, MD, PhD, FIPP; Dionissios Neofytos; Venetiana Panaretiou; Vassilios Zompolas; Dimitrios Papastergiou; Georgios Sanidas; Theonymfai Papavasililopoulou; Loukas Georgiou

Combined Ultrasound and Nerve Stimulation-guided Thoracic Epidural Catheter Placement for Analgesia following Anterior Spine Fusion in Scoliosis
Pierre Pandin, MD; Lionel Haentjens, MD; Jean Corentin Salengros, MD; J. Quentin, MD; Luc Barvais MD, PhD

Current Opinion
Mazes, conflict and paradox: tools for understanding chronic pain
Cary A. Brown, PhD

Erratum
Cell types Obtained from the epidural space of patients with low back pain/radiculopathy

James E Heavner, PhD,1,2; Hemmo A Bosscher, MD1; Mitchell S Wachtel, MD3
Departments of Anesthesiology1, Physiology2 and Pathology3, TTUHSC Lubbock, TX

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Phone: (806) 743-2916
Key Words: Low Back Pain, radicular pain, cytologic analysis, epiduroscopy
Running Head: Epidural Cytology in Low Back/Radicular Pain Patients
Manuscript type: Original Article
Submitted: October 23, 2008; Accepted: January 9, 2009

ABSTRACT
Background: We investigated if correlations exist between medical history, tissue abnormalities and cell types retrieved from the epidural space of patients with chronic low back pain (LBP) and chronic radicular pain (RP).
Methods: Approval was obtained from the Institutional Review Board for the Protection of Human Subjects to study 191 patients undergoing epiduroscopy. Visual inspection was performed and abnormal areas were identified. A specimen obtained from the area using a cytology brush was processed by the Thin Prep technique. Patients were divided into four groups based on the presence or absence and intensity of LBP and RP. The gender and age of the patients were recorded, as was any history of prior back surgery. Areas of tissue abnormalities were rated according to changes in vascularity and amount of fat, fibrosis and inflammation. Stenosis was assessed from MRI or CAT scan images. Cytologic assessments included notations of the presence or absence of erythrocytes, leukocytes, cell groups, lipocytes, spindled cells, and large round cells.
Results: There was a significant difference in the number of patients from whom big round cells were obtained who had a high degree of LBP compared to the number of patients who had a high degree of both LBP and RP.
Conclusions: The findings provide a foundation for future studies of cells obtained from similar patients with the goal of furthering the understanding of the pathogenesis of low back pain/radicular pain.
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Richard L. Rauck, MD, FIPP of Winston-Salem, NC, USA, is founder and editor-at-large of Pain Pathways. Rauck has long envisioned a way to reach out to those living with pain. Pain Pathways, a new quarterly magazine, is that medium. Working with associations and support groups throughout the United States, Pain Pathways brings together pain resources, news on current products and procedures, expert physicians, and the stories of pain survivors.

Rauck is president and founder of the Carolinas Pain Institute and The Center for Clinical Research, Clinical Associate Professor of the Department of Anesthesiology at Wake Forest University School of Medicine, founder of the Sceptor Pain Foundation, and Treasurer and Executive Board member of the World Institute of Pain.

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